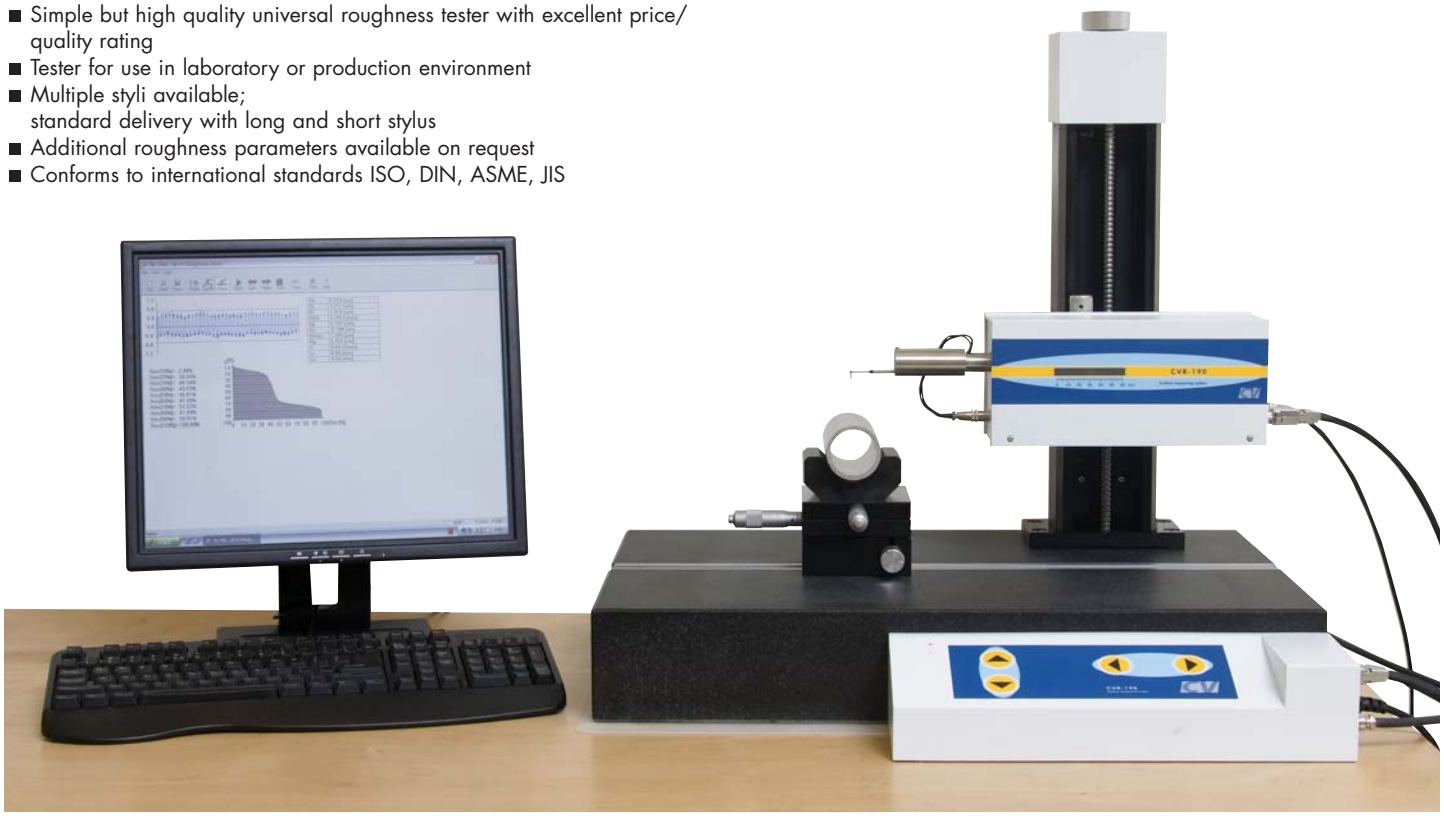
SURFACE FINISH TESTER CV-R190™

Simple to operate, high quality universal surface finish tester

- Simple but high quality universal roughness tester with excellent price/ quality rating
- Tester for use in laboratory or production environment
- Multiple styli available; standard delivery with long and short stylus
- Additional roughness parameters available on request
- Conforms to international standards ISO, DIN, ASME, JIS



Technical specifications

Measuring System	Skidless method using inductive pick-up with interchangeable stylus
Measurement parameter	Ra; Rz; Rt; Rp; Rv; Rq; RSm; RmaxD; Material ratio curve
Measurable roughness range	Ra 0.01~10um
Cut off (L)	0.08mm; 0.25mm; 0.8mm; 2.5mm
Evaluation length (LN)	1L; 2L; 3L; 4L; 5L
Filter	
Measuring length	Horizontal 60mm (vertical 0,6mm / 600um)
Resolution	0,001um
Indication error	Not greater than 6% ±0,004um
Tracing speed	0,5mm/sec
Stylus	R= 2um
Stylus force	0.7mN
Stylus 1 (standard)	For roughness test on plane and round surfaces and in bores from 10mm diameter, max bore depth= 18mm
Stylus 2	For roughness test on plane surfaces, and in bores from 4mm diameter, max. bore depth= 15mm
Worktable	
Rotation range	360°C
Inclination range	±10°C
X - Y range	15mm
Unit height:	115mm
Tracer unit	
Tracer height from granite surface	Min:100mm - max:380mm
Inclination	±10°C
Dimensions	
Granite base	630mm x 400mm x 100mm
Column height	500mm
Control box	360mm x 100mm x 80mm
Power supply	220V 50Hz

Standard delivery

- Main unit
- Tracer unit including 2 styli
- Granite base including column
- Universal worktable
- Control box and drive box
- Standard roughness plate
- V-block large (90mm x 60mm x 40mm 45°) from 4mm - 60mm
- V-block small (40mm x 30mm x 20mm 45°) from 2mm - 20mm incl. magnetic surface
- PCI i/o controller including software and wires
- CV Instruments certificate
- Installation & user manual

Optional accessories

- Various styli for different applications
- Additional roughness parameters

Optional

- Pentium 4 english workstation with hardware and software pre installed

SURFACE FINISH TESTER CV-SE1200™

Instrument for laboratory or production

- Instrument for laboratory or production
- Wide range of pick-ups with interchangeable styli
- Wide range of finish parameters
- Measurement length 0.08mm to 25mm
- Conforms to international standards ISO, DIN, ASME, JIS
- Right angle measurement available for crankshaft
- Waviness measurement based on ISO standard
- Preset of 9 measuring conditions
- Internal thermal printer
- Quick rechargeable battery pack
- Statistics output
- RS-232C output

Technical specifications

Measuring system	Skidless/Skidded method using inductive (LVDT) Pick-Up with interchangeable styli
Measurement parameter	Ra, Rz, tp, Sm, Rt, Rp, Rv, Pc, HSC, Ra/RMS, RmaxD, R3Z, Rmax, RSm, Rmr(c), Rdc, Rsk, Rku, Rk, Mr1, Mr2, Rpk, Rvk, A1, A2, Pa, Pz, Pp, Pv, Pq, RSm, Pmr(c), Pdc, Pt, Pak, Pku, Wa, Wz, Wp, Wv, Wq, Wsm, Wmr(c), Wdc, Wt, BAC, ADC, P/R/W profile
Display	Graphic LCD
Filter	Gauss, 2RC, ISO13565-1 (DIN4776)
Cut-off	λc 0.08, 0.25, 0.8, 2.5, R+W λs ISO3274(96) / ISO97 λc-λf 0.08-0.8, 0.25-0.5, 0.8-8mm
Measuring length	25mm
Evalutation length	λc x 1, 2, 3, 4, 5 / arbitrary 0.08mm~16mm
Vertical magnification	50~100000 (11 steps) / Auto
Horizontal magnification	1~1000 (10 steps), 25mm/λc, 50mm/λc
Straightness accuracy	0.8μm / 10mm
Measuring range/resolution	520μm / 0.008μm
Stylus/skid	R5μm Diamond / R40mm Sapphire
Force	4.0 mN
Function	9 Measuring condition memory, Multi standard analysis, Profile invert, 99 data SPC, PC linking software
Data output	RS-232C
Printer	Internal thermal printer, 8dots / 1mm
Power Supply	Ni-H battery pack, 6 hours continuous operation, 100 - 240 Volts with AC adapter
Weight	Amplifier 1.8kg, Drive unit 0.7kg

Standard delivery

- Amplifier controller unit
- Drive unit
- Internal thermal printer
- Printer paper
- Nose piece ANA
- Stylus arm AA5
- Pick-up body PU-A
- Calibration specimen Ra
- Rechargeable battery pack
- Manual
- CV Instruments certificate

Optional accessories

- Pick-ups with interchangeable styli, see next pages
- UKAS certified roughness reference standards
- Attachment for roll measurement FT-22 (>60mm)
- Extended cable, length 2m drive unit can be apart from amplifier (3.5m)
- RS-232 cable, length 1.5m
- Carrying handle for back side controller unit
- Spare battery pack
- Carrying case

SURFACE FINISH TESTER CV-SE1200™

Instrument for laboratory or production

Accuracy of straightness
CV-SE1200 guarantees the accuracy of straightness 0.8μm /100mm in drive unit

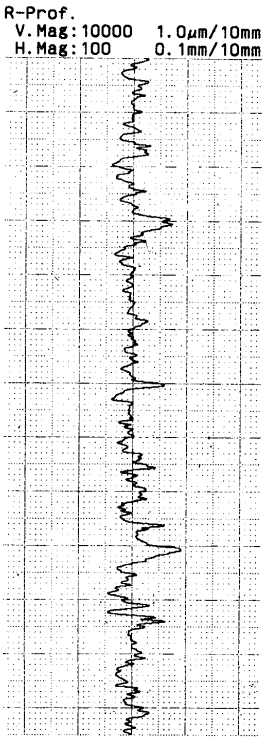
Correcting rounded profile to straight profile
CV-SE1200 will correct rounded profile to straight profile and then calculate, enabling correct measurement

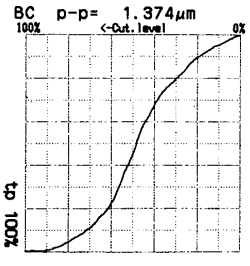
Right angle measurement
CV-SE1200 can attach slider at right angles and measure components such as crankshafts, etc.

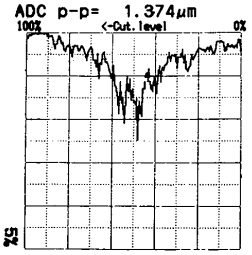
Skidless measurement
Both skid and skidless measurements are possible and can also measure short length, narrow, small, deep or rounded surface in skidless mode

Standard	JIS94
Cutoff	0.25mm
Filter	Gauss
S.Length	0.25mm
E.Length	1.25mm
Levelling	All
M-Speed	0.20mm/s

Ra	0.159μm
Ry	1.057μm
Sm	0.095mm
Rt	1.381μm
Rp	0.640μm
Rv	0.417μm
Rq	0.215μm







SURFACE FINISH TESTER CV-SE1700A ™

Compact multi-function surface finish and form measuring instrument

- Instrument for laboratory or production use
- Surface roughness, waviness, straightness and form
- Wide range of pick-ups with interchangeable styli
- Wide range of roughness parameters
- Measurement length 0.08mm to 30mm
- Conforms to international standards ISO, DIN, ASME, JIS
- Waviness measurement based on ISO standard
- Quick rechargeable battery pack
- Statistics output
- RS-232C output

Technical specifications

Measuring system	Skidless/Skidded method using inductive (LVDT) Pick-Up. with interchangeable styli
Measurement parameter	Ra, Rz, tp, Sm, Rt, Rp, Rv, Pc, HSC, Ra/RMS, RmaxD, R3Z, Rmax, RSm, Rmr(c), Rdc, Rsk, Rku, Rk, Mr1, Mr2, Rpk, Rvk, A1, A2, Pa, Pz, Pp, Pv, Pq, RSm, Pmr(c), Pdc, Pt, Pak, Pku, Wa, Wz, Wp, Wv, Wq, Wsm, Wmr(c), Wdc, Wt, BAC, ADC, P/R/W profile
Display	Touch screen LCD
Filter	Gauss, 2RC, ISO13565-1 (DIN4776), special Gauss
Profile	Un-filtered, filtered (roughness), filtered (centre-line) waviness
Cut-off	λc 0.08, 0.25, 0.8, 2.5, R+W λs ISO3274(96) / ISO97 λc-λf 0.08-0.8, 0.25-0.5, 0.8-8mm
Measuring length	30mm
Evalutation length	λc x 1, 2, 3, 4, 5 / arbitraty 0.08~16mm
Vertical magnification	50~100000 (11 steps) / Auto
Horizontal magnification	1~1000 (10 steps), 25mm/λlc, 50mm/λc
Straightness accuracy	0.3μm / 30mm
Measuring range/resolution	800μm / 0.0005μm
Stylus/skid	R2μm Diamond / R40mm Sapphire
Force	0.7mN
Function	Leveling support, Multi standard analysis, Touch panel, 99 data SPC, PC linking software
Memory	2 sets of data (optional: 16 sets of measurement conditions)
Data output	RS-232C
Power Supply	Ni-H battery pack, 100 - 240 V with AC adapter
Weight	Amplifier 4.5kg, Drive unit 0.9kg

Standard delivery

- Amplifier controller unit
- Drive unit
- Calibration specimen Ra
- Nose piece ANA
- Stylus arm AA2
- Pick-up body PU-A2
- Manual
- CV Instruments certificate

Optional accessories

- Pick-ups with interchangeable styli, see next pages
- Memory card for storage of 16 sets of measuring conditions
- UKAS certified roughness reference standards
- Attachment for roll measurement FT-22 (>60mm)
- Extension cable, length 2m Drive unit can be apart from amplifier (3.5m)
- RS-232 cable, length 1.5m
- Carrying handle for back side controller unit
- Battery pack for reserve purpose
- Carrying case

SURFACE FINISH TESTER CV-SE1700A ™

Compact multi-function surface finish and form measuring instrument

Display and touch control panel
The unique display and touch control panel is very user friendly, even without an instruction manual. The opening of individual windows by touching the panel makes selection of all measurement conditions, parameters and data required for records a simple operation.

No instruction manual required, simply open a "window" and select, input or change the data.

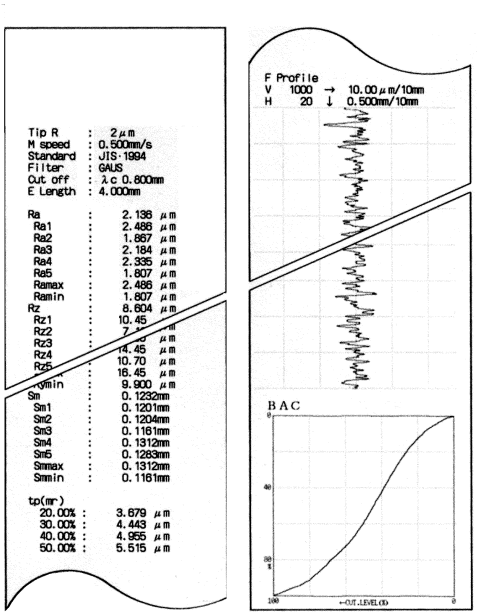
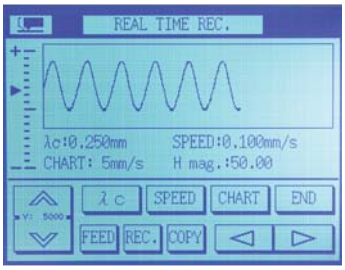
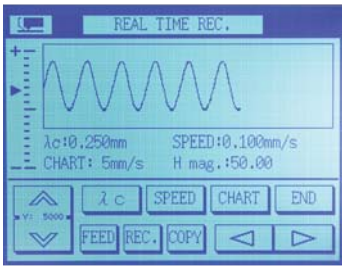


Chart data outputs

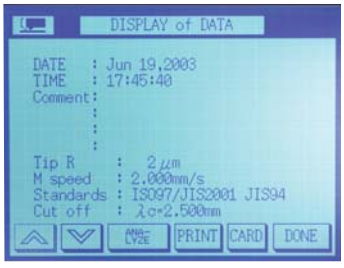


Real time profile recording

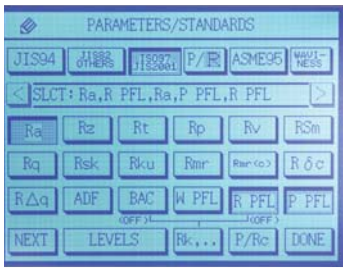
Measurement display



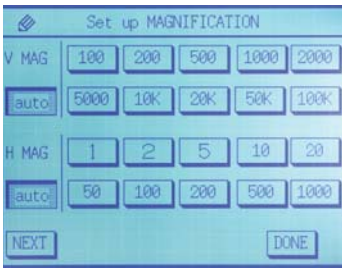
Real time rec.



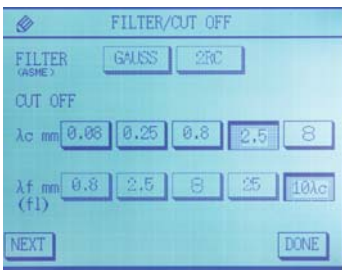
Display of all measuring conditions



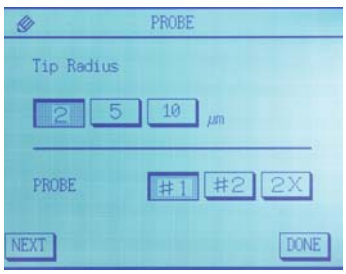
Parameter selection



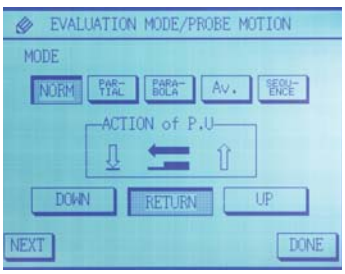
Magnification settings



Cut-off/Filter settings



Probe



Mode selection

SURFACE FINISH TESTER CV-SE3500™

PC controlled surface finish and form measuring instrument

- Surface finish, waviness, straightness and form
- Wide range of pick-ups with interchangeable styli
- Wide range of finish parameters
- Measurement length 0.08mm to 100mm
- Conforms to international standards ISO, DIN, ASME, JIS
- Waviness measurement based on ISO standard

This system can be upgraded with functions for contour and form measurement

Technical specifications

Measuring system	Stylus method using inductive (LVDT) pick-up
Measurement parameter	Ra (Ra75), Rq, Ry, Rmax, Rt, Rz, Rz5, Rz3, R3z, R3zmax, RzmaxD, RzD, Sk, Ku, Pc, HSC, PPI, Rpm, Sι, Sm, S, Rp, Rv, θa, θq, Δa, Δq, λa, λq, K, tp,BC,ADC, FFT, Rk, Rpk, Rvk, Mr1, Mr2, Wca, Wcm, Wea, Wem, Straightness, Gap, Coordinates
Measuring range	Vertical 50, 100, 200, 500, 1000, 2000, 5000, 10000, 20000, 50000, 100000, 200000, 500000, Horizontal 1, 2, 5, 10, 100, 200, 500, 1000, 2000, 5000
Measuring range	Vertical: 600 um, Horizontal: 100mm
Evaluation length	0.25, 0.8, 2.5, 8, 25, 80mm/λc x 1, 2, 3, 4, 5
Traverse speed	0.05, 0.1, 0.2, 0.5, 1, 2mm/sec at measuring, 5, 10mm/sec
Cut off	Finish 0.08, 0.25, 0.8, 2.5, 8mm and un-filtered Waviness fι 0.8, 2.5, 8, 25mm fh 0.08, 0.25, 0.8, 2.5mm
Filter	Gaussian/2CR/Special Gaussian
Sampling number/resolution	Max 32000 points/16 bit
Auto levelling	Least square method, 2 points method, R curve correction, quadratic curve correction
Auxiliary function	Recording of deliberate layout, chart template, mean processing, statistical processing, discontinued measurement, recomputing, resistration of pick-up, recording of comments, calibration of automatic sensitivity, unit changeover between mm/inch, automatic measurement, notch processing, changing of profile size
Bed with column	Bed 600mm x 315mm, maximum load 70kg, auto down stop accuracy ±0.2μm at x100,000 (when using a skid), range of up and down movement of pick-up 250mm
Leveling stand	160mm x 50mm, with V-Shape groove (to the measuring direction), rotation ±3°, vertical tilt ±3°, Y-axis feed ±3mm
Drive unit	Straightness accuracy 0.2μm/100mm^3
Pick up	R2μm, 0.7mN, Diamond
Dimensions	Measurement section 600mm x 400mm x 593mm, 80kg, Computing section 900mm x 600mm x 520mm, 30kg
Power supply	AC90~120V, 50/60Hz, 800VA

Standard delivery

- Pick-up
- Drive unit
- Bed with column
- Remote controller
- Leveling stand
- Controller
- Calibration specimen Ra
- Manual
- CV Instruments certificate

Optional accessories

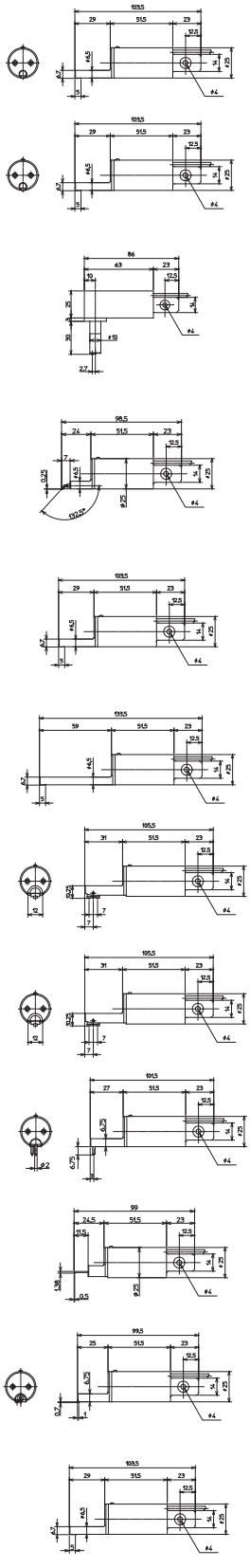
- PC with monitor
- Pick-ups with interchangeable styli, see following pages
- UKAS certified finish reference standards
- Laser printer

SURFACE FINISH PICK-UPS

D-series for CV-SE3500 (not exchangeable)

Finish pick-ups **High dynamic performance type**

Type:		Radius	Force	Range	Size
PU-DA5/PUDA5S	Normal bore	5µm	4mN	600µm	
Type:	Knife edge	Radius	Force	Range	Size
PU-DC5/PU-DC5S	Very small wires	5µm	4mN	600µm	
Type:	Bottom of hole	Radius	Force	Range	Size
PU-DE10/PU-DE10S	and groove	10µm	16mN	600µm	
(PU-DF10: Kow Mag.)					
Type:	Screw thread	Radius	Force	Range	Size
PU-DH10/PU-DH10S		10µm	4mN	600µm	
Type:	Low meas. force	Radius	Force	Range	Size
PU-DJ2/PU-DJ2S	softer materials	2µm	0.7mN	600µm	
(PU-DJ2U: Low force)			(0.3mN)		
Type:	Long bore	Radius	Force	Range	Size
PU-DQ10/PU-DQ10S		10µm	10mN	1200µm	
Type:	Twin-skid swiveling	Radius	Force	Range	Size
(PU-DB5F: All posture)	for wavy surface	5µm	4mN	600µm	
Type:	Crank shaft	Radius	Force	Range	Size
PU-DD5/PU-DD5S	between flanks	5µm	4mN	600µm	
Type:	Curve surface	Radius	Force	Range	Size
PU-DG5/PU-DG5S	bottom of groove	5µm	4mN	600µm	
Type:	Small bore	Radius	Force	Range	Size
PU-DI5/PU-DI5S		5µm	4mN	600µm	
Type:	Corner end	Radius	Force	Range	Size
PU-DK5/PU-DK5S		5µm	4mN	600µm	
Type:	Waviness	Radius	Force	Range	Size
PU-DW800/PU-DW800S		800µm	4mN	600µm	



SURFACE FINISH PICK-UPS

A-series for CV-SE1200 and CV-SE1700A and CV-SE3500 (exchangeable)

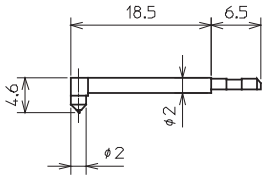
Pick-up body

Type:	PU-A (normal force)	Pick-up body not including stylus arm and nose piece (CV-SE1200)
Type:	PU-A2 (low force)	Pick-up body not including stylus arm and nose piece (CV-SE1700)

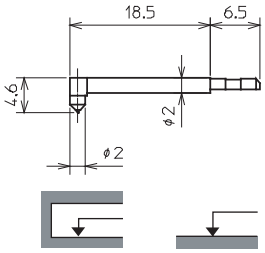
Stylus arms

( ) = low force to be used with body PU-A2

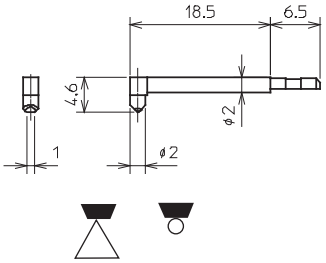
Type: **AA2 (CV-SE1700)**
Radius: 2µm
Force: 4mN (0.7mN)
Nose pc: ANA/ANH
Range: 600µm
Use: General use
Normal bore



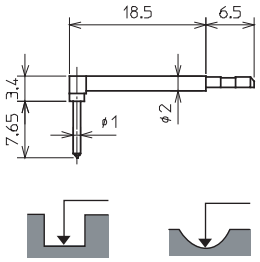
Type: **AA5 (CV-SE1200)**
Radius: 5µm
Force: 4mN (0.7mN)
Nose pc: ANA/ANH
Range: 600µm
Use: General use
Normal bore



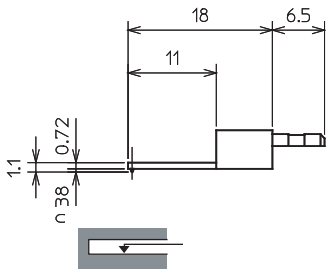
Type: **AC5**
Radius: 5µm
Force: 4mN (0.7mN)
Nose pc: ANA/ANH
Range: 600µm
Use: Knife edge
Very small wire



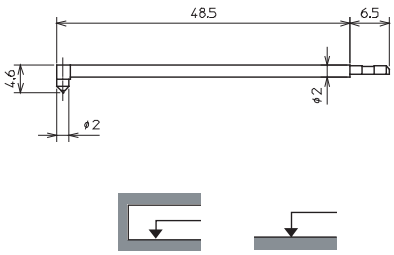
Type: **AG5**
Radius: 5µm
Force: 4mN (0.7mN)
Nose pc: ANG/ANH
Range: 600µm
Use: Curve surface
Deep groves



Type: **AI5**
Radius: 5µm
Force: 4mN (0.7mN)
Nose pc: ANH
Range: 600µm
Use: Small bore

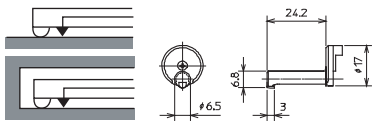


Type: **AL10**
Radius: 5µm
Force: 8mN (5mN)
Nose pc: ANL/ANH
Range: 1200µm
Use: Long bore

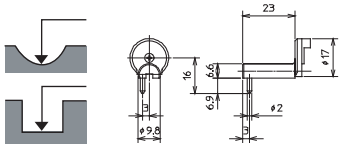


Nose pieces

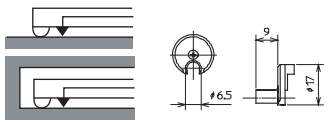
Type: **ANA**
R40mmxR2mm
Skid
General use



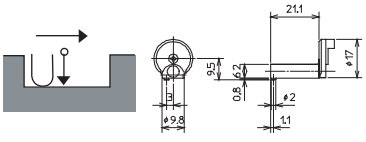
Type: **ANG**
R0.5mm Skid
Curve/Groove



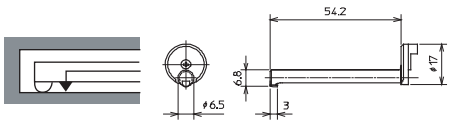
Type: **ANH**
Skidless
measurement
without Skid



Type: **ANK**
R40mm Skid
Corner end



Type: **ANL**
R40mmxR2mm
Skid
Long bore



CONTOUR MEASUREMENT SYSTEM CV-EF150E/EF150ED™

Contour and form measuring system

- High-end contour and form measuring system
- Pick up/down range 200mm manual (CV-EF150E)
  Pick up/down range 200mm motorized (CV-EF150ED)
- Digital error compensation to compensate stylus arc movement
- 45° tilting mechanism
- Synchronization control between pick-up movement and recorder
- Selectable measuring direction to save workpiece setting time
- Thickness and comparative measurements can be easily done
- Perfect safety and warning functions such as:
  stylus slowdown mechanism, overload stopping function,
  upper-limit warning buzzer

Technical specifications

Accuracy	Z : 0.1%/5mm, X : 0.2%/5mm
Measuring range	Z: 50mm, X:100mm
Resolution	0.1µm in X axis
Display magnification	1 to 200x in both Z and X axis (up to 2.000 times optional)
Drive speed	0.02mm to 5mm/s at measuring, 0.02mm to 10mm/s at returning
Straightness accuracy	1µm/100mm
Pick up	Stylus R25µm, tungsten carbide
Measuring force	10mN to 30mN (adjustable)
Traceable angle	Ascend: 77 degrees (smooth surface), descend: 87 degrees
Measuring direction	Both upward and downward, both forward and backward
Pick up/down range	200mm manual (EF-150ED: 200mm motorized)
Dimensions measuring part	640mm x 685mm x 315mm, 70kg
Dimensions amplifier	436mm x 387mm x 150mm, 10kg
Dimensions PC and printer part	650mm x 500mm x 550mm, 30kg for reference
Operation conditions	10°C to 30°C / 80% or less
Power supply	AC100V 50/60Hz 500VA including 300VA for PC and printer
Data correct functions	Alignment function (data point movement, rotation, reverse), linkage function, stylus curvature radius correction, stylus arm arc error correction, best fit function
Analysis items	Element analysis (point, line, circle, peak, through, cross point, cross line, contact point), scaler analysis (coodination distance, cross angle, distance, radius), ball screw analysis, master comparison analysis, inspherical surface analysis
Measuring support functions	Macro function, auto measuring function
Auxiliary functions	Free layout edit, vibrator, measuring range limitation, overload stop, up/downward measuring, over scale warning

Standard delivery

- Bed with column
- Drive unit
- Pick-up (standard PU/FG25 with stylus arm SB-609)
- Amplifier
- Contour analysing software
- Calibration specimen
- CV Instruments certificate
- Manual

Optional accessories

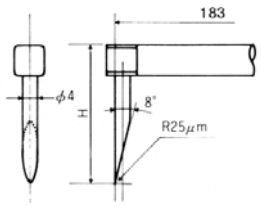
- PC with monitor
- Contour pick-up series and styli and stylus arms (see next pages)

PICK-UPS FOR CONTOUR MEASUREMENT

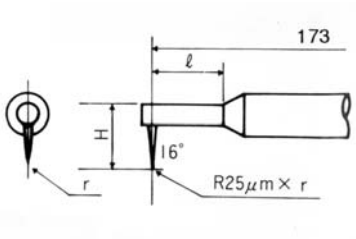
For series CV-EF150E/CV-EF150ED

Stylus arms

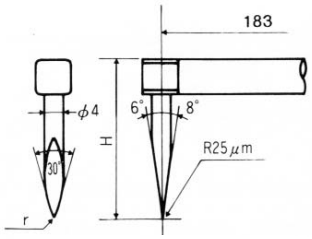
Type: **Chisel type**
SB-609



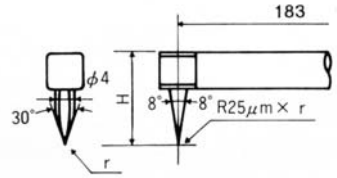
Type: **Small hole type**
SB-7, 8, 9, 10



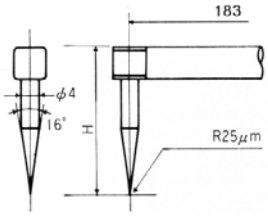
Type: **Axe type**
SB-1A,4



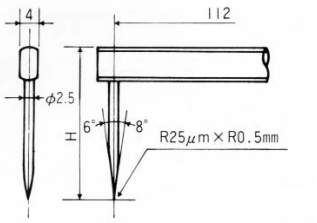
Type: **Small hole B- type**
SB-11,12



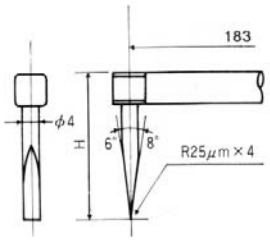
Type: **Conical type**
SB-2A,17,5,18



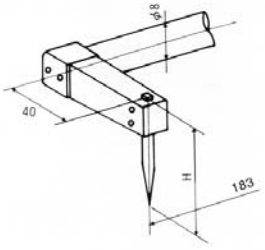
Type: **Narrow groove type**
SB-13,14



Type: **Knife-edge type**
SB-3A,6

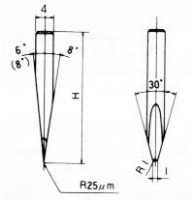


Type: **Crank type**
SB-15A,18

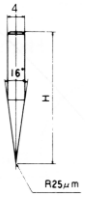


Stylus forms

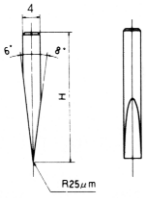
Type: **Standard styli**
S-1B H=29mm
S-4 H=50mm



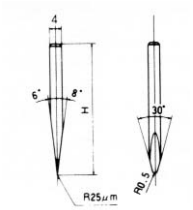
Type: **Standard styli**
S-1B H=29mm
S-4 H=50mm



Type: **Knife-edge styli**
S-3B H=29mm
S-6 H=50mm



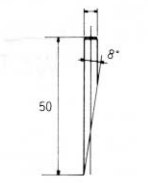
Type: **Styli for narrow groove (styli for holes)**
S-13 H=22.5mm
S-44 H=30mm

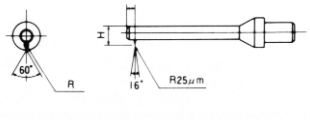


Type: **Styli for small holes**

S-7	H=2mm,	R0.2mm
S-8	H=3.5mm,	R0.2mm
S-9	H=5.6mm,	R0.5mm
S-10	H=8.5mm,	R0.5mm
S-11	H=13mm,	R0.5mm
S-12	H=21.5mm,	R0.5mm

Type: **Standard offset styli**
S-609

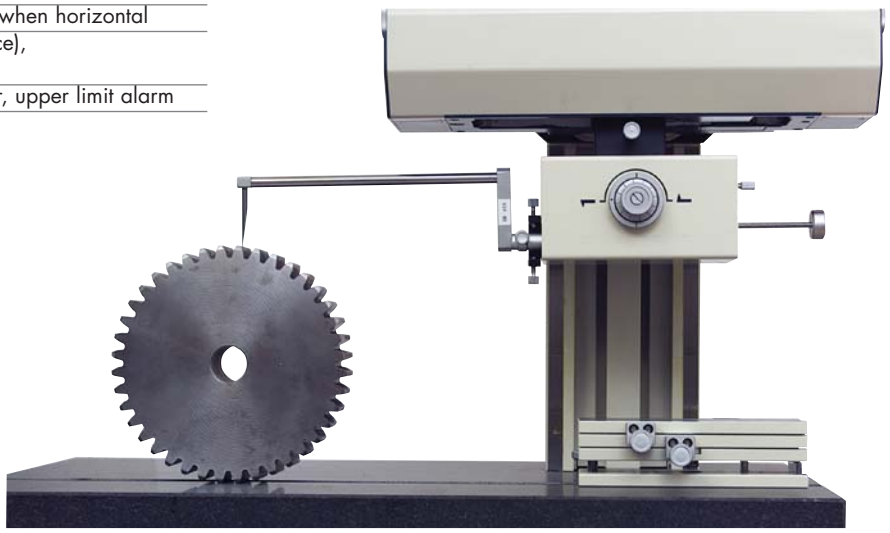




STYLI AND STYLUS ARMS FOR CONTOUR MEASUREMENT

For series CV-EF150E/EF150ED

Item	PU-FG25
Sensor	Differential transformer
Measuring range	50mm
Measuring force	10 to 30mN (1 gf to 3 gf) when horizontal
Stylus traceable angle	Ascend: 77° (smooth surface), Descend 87°
Auxiliary function	Vibrator, overload protector, upper limit alarm



Applied pick-ups

Type	Name	Combination				Specifications	
		Arm	Stylus	Measurement depth	R(mm)	Material	Others
SB-1A (SA-1A)	Standard stylus arm	B-1 (A-1)	S-1A	21 (20)	0.025	Carbide	
SB-2A (SA-2A)	Conical stylus arm	B-1 (A-1)	S-2A (S-17A)	21 (20)	0.025	Sapphire (carbide)	
SB-3A (SA-3A)	Knife stylus arm	B-1 (A-1)	S-3A	21 (20)	0.025	Carbide	
SB-4A (SA-4A)	Standard stylus arm for large step	B-2 (A-2)	S-4	42 (40)	0.025	Carbide	CV-EF150 series standard
SB-609 (SA-609)	Standard offset stylus arm	B-609 (A-609)	S-609	42 (40)	0.025	Carbide	CV-EF150 series standard
SB-5 (SA-5)	Conical stylus arm for large step	B-2 (A-2)	S-5 (S-18)	42 (40)	0.025	Sapphire (carbide)	
SB-6 (SA-6)	Knife stylus arm for large step	B-2 (A-2)	S-6	42 (40)	0.025	Carbide	
SB-7 (SA-7)	2.5 stylus arm	B-3 (A-3)	S-7	0.4	0.025	Carbide more	Hole diameter ø 2.5mm or more
SB-8 (SA-8)	4 stylus arm	B-4 (A-4)	S-8	1	0.025	Carbide	Hole diameter ø 4mm or more
SB-9 (SA-9)	6.3 stylus arm	B-5 (A-5)	S-9	1.6	0.025	Carbide	Hole diameter ø 6.3mm or more
SB-10 (SA-10)	10 stylus arm	B-6 (A-6)	S-10	2.5	0.025	Carbide	Hole diameter ø 10mm or more
SB-11 (SA-11)	16 stylus arm	B-7 (A-7)	S-11	5	0.025	Carbide	Hole diameter ø 16mm or more
SB-12 (SA-12)	25 stylus arm	B-8 (A-8)	S-12	13.5	0.025	Carbide	Hole diameter ø 25mm or more
SB-13 (SA-13)	Stylus arm for narrow grooves	B-9 (A-9)	S-13	12.5	0.025	Carbide	Groove width 4.5mm or more
SB-14 (SA-14)	Stylus arm for narrow grooves	B-10 (A-10)	S-14	20	0.025	Carbide	Groove width 4.5mm or more
SB-15A (SA-15A)	Crank stylus arm	B-11 (A-11)	S-1A	21 (20)	0.025	Carbide	
SB-16 (SA-16)	Crank stylus arm	B-12 (A-12)	S-4	42 (40)	0.025	Carbide	

ROUNDNESS TESTER CV-EC1550 ™

PC controlled roundness measuring instrument

- Manual centering and tilting support function
- Geometrical features:
  Roundness, straightness, cylindricity, spiral cylindricity, co-axiality, concentricity, parallelism, flatness, squareness, circular runout, thickness deviation, radius deviation, knife-edge analysis
- Powerfull data processing software
- Static air bearing
- Very high rotating accuracy of (0.04+0.0006H)µm
- Max. workpiece diameter 368mm
- Max. probing height (OD): 420mm for outer diameter
- Max. probing height (ID): 270mm for inner diameter
- 12 interchangeable styli available for all kinds of special applications

ROUNDNESS TESTER CV-EC1600W ™

PC controlled roundness measuring instrument

- Manual centering and tilting support function
- Geometrical features:
  Roundness, straightness, cylindricity, spiral cylindricity, co-axiality, concentricity, parallelism, flatness, squareness, circular runout, thickness deviation, radius deviation, knife-edge analysis
- Powerfull data processing software
- Static air bearing
- Very high rotating accuracy of (0.04+0.0005H)µm
- Max. workpiece diameter 368mm
- Max. probing height (OD): 545mm for outer diameter
- Max. probing height (ID): 320mm for inner diameter
- 12 interchangeable styli available for all kinds of special applications

ROUNDNESS TESTER CV-EC1550/CV-EC1600W ™

PC controlled roundness measuring instrument

Technical specifications

Turntable		
Rotating method		Static air bearing
Rotating accuracy		(0.04+0.0006H)µm H: Probing height (mm) (CV-EC1550) (0.04+0.0005H)µm H: Probing height (mm) (CV-EC1600W)
Rotating speed		1 to 10rpm (adjustable)
Table size		160mm (CV-EC1550), 180mm (CV-EC1600W)
Centering adjustment range		±2mm
Leveling adjustment range		±1.0°
Min. angle indication		0.1
Max. workpiece load		20kg
Max. workpiece diameter		368mm
Column unit		
Straightness		0.6µm/100mm (1.2µm/250mm) (CV-EC1550) 0.4µm/100mm (0.8µm/300mm) (CV-EC1600W)
Parallelism		0.75µm/100mm (1.5µm/200mm) (CV-EC1550) 0.5µm/100mm (1.0µm/200mm) (CV-EC1600W)
Vertical travel		250mm (CV-EC1550), 300mm (CV-EC1600W)
Travelling speed		0.5, 1, 2, 5mm/s at measuring
Max. probing height (OD)		420mm (CV-EC1550) for outer diameter, 545mm (CV-EC1600W) for outer diameter
Max. probing height (ID)		270mm (CV-EC1550) for inner diameter, 320mm (CV-EC1600W) for inner diameter
Radial arm unit		
Radial travel		130mm (CV-EC1550), 160mm (CV-EC1600W)
Pick up unit		
Measuring force		100mN or less (adjustable)
Measuring range		1800µm
Stylus		Radius 0.8mm, Tungsten carbide
Analysis unit		
Measuring magnification		100, 200, 500, 1.000, 2.000, 5.000, 10.000, 20.000, 50.000X
Digital filter		
Roundness	2CR	N15, N50, N150, N500, N15-500, non-filter
	Gaussian	D15, D50, D150, D500, D15-500, non-filter
Straightness	2CR	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
	Gaussian	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
Determination method		MZC, LSC, MCC, MIC
Geometrical features		Roundness, flatness, cylindricity, co-axiality, concentricity, runout, squareness, straightness, parallelism, thickness deviation
Utilities		
Power supply		AC100V-220V, ±10%, 50/60Hz
Analysis unit		
Air supply		4.5 to 9.9kgf/cm² (440 to 970KPa), dry air
Air pressure		4 to 5kgf/cm² (390 to 490KPa), 30Nl/min
Analysis unit		
Measuring unit		590mm x 332mm x 918mm, 130kg (WxDxH)
Amplifier		406mm x 342mm x 270mm, 20kg (WxDxH)
PC and printer		Local supply
Operating environment		10°C to 30°C, RH 80% or less

Standard delivery

- Measuring unit
- Standard probe
- Controller
- Programm software

Optional accessories

- PC with monitor
- Interchangeable styli for different applications:
  Ask for separate overview
- Chucks ø 0.8 ~ 56mm used for clamping small diameter workpieces
- Reference hemisphere for checking accuracy
- Printer

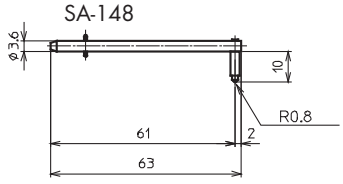
ROUNDNESS TESTER CV-EC1800 ™

PC controlled roundness measuring system

- Motorized auto centering and tilting support function
- Large stage size of 230mm
- Geometrical features:
  Roundness, straightness, cylindricity, spiral cylindricity, co-axiality, concentricity, parallelism, flatness, squareness, circular runout, thickness deviation, radius deviation, knife-edge analysis
- Powerfull data processing software
- Static air bearing
- Very high rotating accuracy of (0.04+0.0006H)µm
- Max. workpiece diameter 368mm
- Max. probing height (OD): 545mm for outer diameter
- Max. probing height (ID): 320mm for inner diameter
- 12 interchangeable styli available for all kinds of special applications

Styli for roundness testers

Type: SA-148



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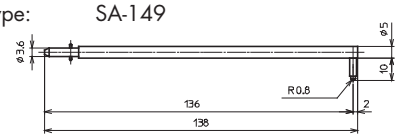
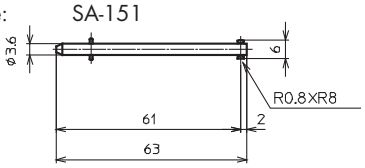
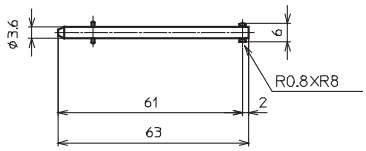


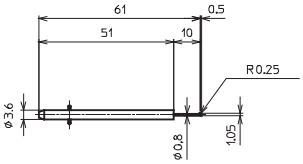
Type: SA-151



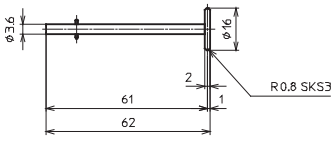
Type: SA-152



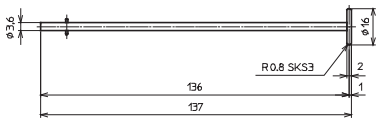
Type: SA-154



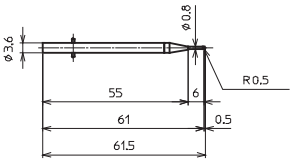
Type: SA-155



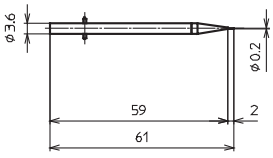
Type: SA-156



Type: SA-157



Type: SA-158



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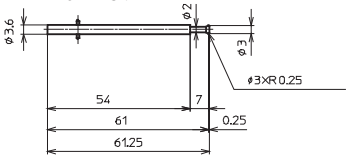

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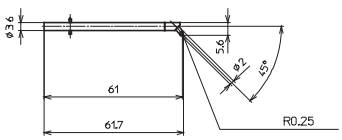
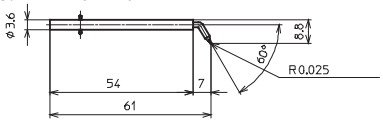


Type: SA-161



ROUNDNESS TESTER CV-EC1800 ™

PC controlled roundness measuring system

Technical specifications

Stage		
Rotating method		Porus static air bearing / stage rotation
Rotating accuracy		(0.04+0.0006H)µm H: Height from stage (mm)
Rotating speed		1 to 6rpm
Stage size		230mm dia
Centering adjustment range		±5mm (Motorized)
Leveling adjustment range		±1° (Motorized)
Max. workpiece load		25kg
Max. workpiece diameter		368mm
Column unit		
Straightness		0.4µm/100mm (1µm/300mm)
Parallelism		0.7µm/100mm (1.5µm/200mm)
Vertical travel		300mm
Travelling speed		0.5, 1 and 2mm/s at measuring, 5mm/sec at positioning
Max. measuring height		545mm for outer, 320mm for inner
Radial arm unit		Radial travel: 160mm
Pick up unit		
Measuring force		100mN or less (adjustable)
Measuring range		1800µm
Stylus		Radius 0.8mm, Tungsten carbide
Analysis unit		
Measuring magnification		100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K
Digital filter		
Roundness	2CR	N15, N50, N150, N500, N15-500, non-filter
	Gaussian	D15, D50, D150, D500, D15-500, non-filter
Straightness	2CR	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
	Gaussian	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
Determination method		MZC, LSC, MCC, MIC
Analysis items		Roundness, flatness, cylindericity, co-axiality, concentricity, run-out, squareness, straightness, parallelism, thickness deviation
Utilities		
Power Supply		AC100V, ±10%, 50/60Hz, 1KVA
Air pressure at bearing		4 to 5kgf/cm²G (390 to 490KPa), 30Nl/min
Air Supply		4.5 to 9.9kgf/cm²G (440 to 970KPa), Dry air
Dimensions		
Measuring unit		600mm x 400mm x 910mm (WxDxH), 150kg
Amplifier		406mm x 342mm x 270mm (WxDxH), 20kg
PC and printer		Local supply
Operating environment		10°C to 30°C, RH 80% or less

Standard delivery

- Measuring unit
- Standard probe
- Controller
- Programm software

Optional accessories

- PC with monitor
- Interchangeable styli for different applications:
  Ask for separate overview
- Chucks ø 0.8 ~ 56mm used for clamping small diameter workpieces
- Reference hemisphere for checking accuracy
- Printer

ROUNDNESS TESTER CV-EC2500 ™

PC controlled roundness measuring system

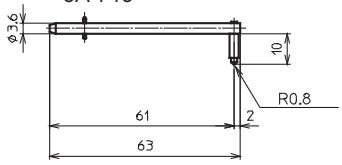
- Motorized auto centering and tilting support function
- Large stage size of 260mm
- Safety function on pick-up
- Geometrical features:
  Roundness, straightness, cylindricity, spiral cylindricity, co-axiality, concentricity, parallelism, flatness, squareness, circular runout, thickness deviation, radius deviation, knife-edge analysis
- Powerfull data processing software
- Static air bearing
- Very high rotating accuracy of (0.02+0.0003H)μm
- Max. workpiece diameter 450mm
- Max. probing height (OD): 570mm for outer diameter
- Max. probing height (ID): 420mm for inner diameter
- 12 interchangeable styli available for all kinds of special applications

Option

- Measuring direction (IN/OUT) auto exchanger
- Radial arm straightness guarantee
  (straightness 0.5μm/100mm, squareness 1μm/100mm)

Styli for series roundness testers

Type: SA-148



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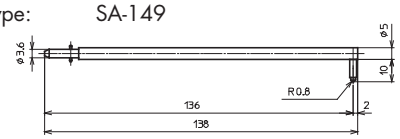

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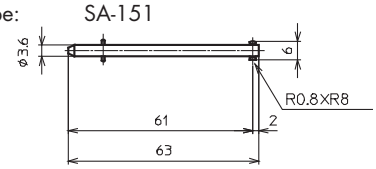

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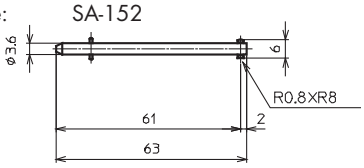

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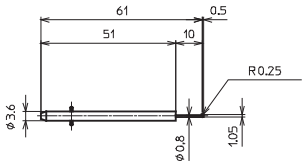

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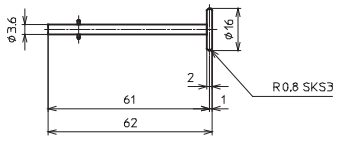

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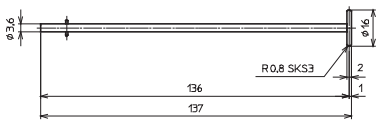

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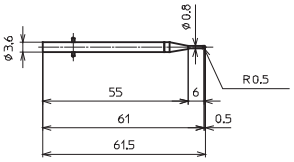

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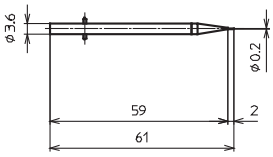

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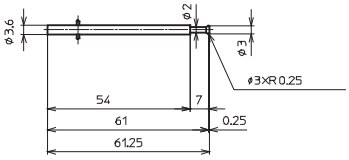

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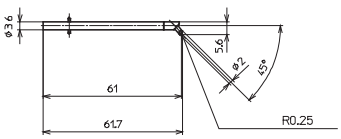

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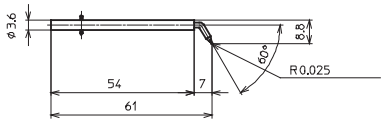

ROUNDNESS TESTER CV-EC2500 ™

PC controlled roundness measuring system

Technical specifications

Stage		
Rotating method		Porus static air bearing / stage rotation
Rotating accuracy		(0.02+0.0003H)µm H: Height from stage (mm)
Rotating speed		1 to 10rpm
Stage size		260mm dia
Centering adjustment range		±5mm (Motorized)
Leveling adjustment range		±2° (Motorized)
Max. workpiece load		30kg
Max. workpiece diameter		450mm
Column unit		
Straightness		0.15µm/100mm (0.4µm/300mm)
Parallelism		0.8µm/200mm
Vertical travel		400mm
Travelling speed		0.5, 1, 2 and 5mm/s at measuring, 20mm/sec at positioning
Max. measuring height		570mm for outer, 420mm for inner
Radial arm unit		Radial travel: 180mm
Pick up unit		
Measuring force		100mN or less (adjustable)
Measuring range		1800µm
Stylus		Radius 0.8mm, Tungsten carbide
Analysis unit		
Measuring magnification		100, 200, 500, 1K, 2K, 5K, 10K, 20K, 50K, 100K
Digital filter		
Roundness	2CR	N15, N50, N150, N500, N15-500, non-filter
	Gaussian	D15, D50, D150, D500, D15-500, non-filter
Straightness	2CR	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
	Gaussian	fh0.025, 0.08, 0.25, 0.8, 2.5, 8mm, non-filter
Determination method		MZC, LSC, MCC, MIC
Analysis items		Roundness, flatness, cylindericity, co-axiality, concentricity, run-out, squareness, straightness, parallelism, thickness deviation
Utilities		
Power Supply		AC100V, ±10%, 50/60Hz, 1KVA
Air pressure at bearing		4 to 5kgf/cm²G (390 to 490KPa), 30Nl/min
Air Supply		4.5 to 9.9kgf/cm²G (440 to 970KPa), Dry air
Dimensions		
Measuring unit		930mm x 590mm x 1660mm (WxDxH), 550kg
Amplifier		406mm x 342mm x 270mm (WxDxH), 20kg
PC and printer		Local supply
Operating environment		10°C to 30°C, RH 80% or less

Standard delivery

- Measuring unit
- Standard probe
- Controller
- Programm software

Optional accessories

- PC with monitor
- Interchangeable styli for different applications:
  Ask for separate overview
- Chucks ø 0.8 ~ 56mm used for clamping small diameter workpieces
- Reference hemisphere for checking accuracy
- Printer

Instruments

HARDNESS TESTERS - DUROMETERS - **SURFACE FINISH TESTERS**
CONTOUR MEASUREMENT - COATING THICKNESS GAUGES
ULTRASONIC THICKNESS GAUGES - WALL THICKNESS GAUGES
VIBRATION METERS - MICROSCOPES - PROFILE PROJECTORS

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COATING THICKNESS GAUGE "STYLOTEST" ™

Dry film pull-off gauge for steel substrates CV-CG100

- Measurement of paint coatings on steel
- Designed as a pen with a pocket clip
- Magnetic attraction principle featuring a permanent magnet
- Patented HOLD mechanism for last reading
- For open and recessed measuring areas
- Coloured zones for quick go/no-go quality assessment
- No power supply or batteries required

Technical specifications

Measuring range	25-700 microns or 1-28mm
Application	Paint coatings on steel substrates
Principle	Magnetic attraction
Accuracy	±10% of reading
Min. measuring area	25mm diameter
Standards	Conforms to DIN-EN-ISO2178
Ambient temperature	-10°C ...80°C
Dimensions	150mm length, diameter 10mm
Weight	Approx. 150g

Standard delivery
- Stylotest gauge
- Manual
- CV Instruments certificate

Optional accessories
- Coating thickness standards

COATING THICKNESS GAUGE CV-CG120 A-SERIES™

Fast and reliable analogue measurements on steel substrates model CV-CG120 series

- Highest accuracy with simplest operation
- Several models with ergonomic design
- No calibration necessary
- All gauges without power or battery
- One point measurement with a non-wearing probe
- A robust metal case and system resistant to mechanical shocks, acids and solvents

Also non-automatic models available

Type 5 = standard version
Type 6 = automatic version

Version	Range	Application	Tolerance	Minimum surface	Min. curvature radius of the sample	Min. base thickness
5 G 6 G	0... 100µm	Electroplating and the paint coatings on steel**	±1µm or 5% of the reading	ø 20mm	5mm convex/25mm concave	0.5mm
5 F 6 F	0... 1000µm	Paint on steel**	±5µm or 5% of the reading	ø 30mm	8mm convex/25mm concave	0.5mm
6 S3	0.2... 3mm	Enamel, plastic,	±5% of the reading	ø 30mm	15mm convex/25mm concave	1.0mm
6 S5	0.5... 5mm	and rubber	±5% of the reading	ø 50mm	15mm convex/25mm concave	1.0mm
6 S10	2.5... 10mm	on steel *	±5% of the reading	ø 50mm	15mm convex/25mm concave	2.0mm
6 NiFe50	0... 50µm	Electroplated nickel on steel	±(2µm + 8% of the reading)	ø 20mm	10mm convex/25mm concave	0.5mm

** steel ST 33 to ST 60
*** special

Technical specifications

Standards	DIN-EN-ISO2178, DIN50982, ASTM B499, E376, D1186, G12, B530, BS5411, ISO2361
Ambient temperature	-20°C ...100°C
Dimensions	Gauge 215mm x 55mm x 29mm
Weight	Approx. 450gr

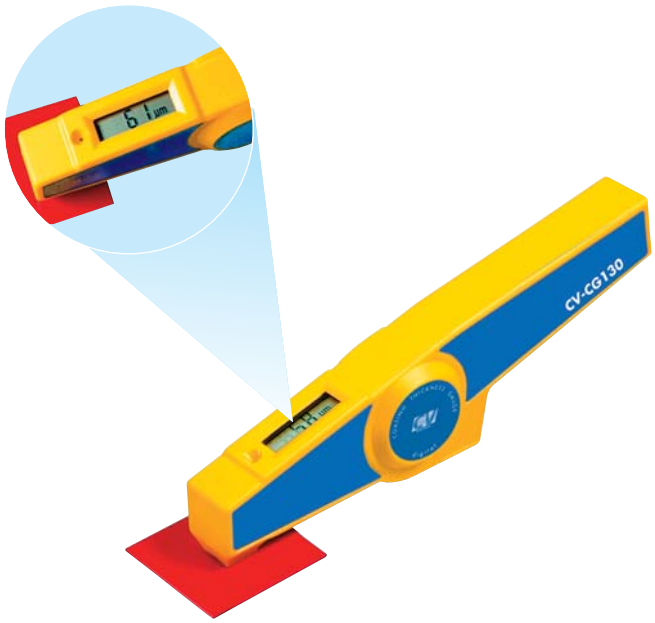
Standard delivery
- CV-CG120
- Plastic case
- Neck cord
- Manual
- CV Instruments certificate

Optional accessories
- Gauges for specific applications
- Leather case for safe transport of the gauge on a belt
- Coating thickness standards
- Wet film gauge for measuring the thickness of wet coatings

COATING THICKNESS GAUGE CV-CG130 D-SERIES™

Ready-to-test analogue tester with lever system for direct load application CV-CG130 series

- New generation digital patented coating thickness gauges ("7 Series") featuring higher accuracy and easy digital display reading
- 4 models available
- No calibration necessary
- All gauges with battery
- One point measurement with a non-wearing probe
- A robust heavy case and system resistant to mechanical shocks, acids and solvents



	CV-CG130 G7	CV-CG130 F7	CV-CG130 S5 7	CV-CG130 S15 7
Range	0-300µm	0mm-1.5mm	0.5mm-5.0mm	3.0mm-15.0mm
Tolerance	2µm ±3%	5µm ±3%	±4%	±4%
Accuracy	0.5µm	1µm	5µm	20µm
Min. measuring contact	20mm	30mm	50mm	100mm
Min. radius convex/concave	5mm/25mm	8mm/25mm	15mm/25mm	100mm/150mm
Min. substrate thickness	0.5mm	0.5mm	1mm	7mm

Technical specifications

Standards	DIN-EN-ISO2178, DIN50982, ASTM B499, E376, D1186, G12, B530, BS5411, ISO2361
Ambient temperature	-10°C ...50°C
Dimensions	Gauge 210mm x 58mm x 32mm
Weight	Approx. 400gr

Standard delivery
- CV-CG130
- Plastic case
- Neck cord
- Manual
- Batteries
- CV Instruments certificate

Optional accessories
- 4 gauges for specific applications
- Leather case for safe transport of the gauge on a belt
- Coating thickness standards
- Wet film gauge for measuring the thickness of wet coatings

COATING THICKNESS GAUGE TT-210 ™

Handheld gauge with ingrated FN probe

- Easy to use
- Integrated probe FN
- Automatic substrate recognition
- Automatic calculation: Mean/Max/Min/No./S.Dev
- Upper-lower limit setting and sound alarm
- Data output RS-232 to printer TA-220S or PC
- Storage function for 500 measuring results
- Measurement modes: continuous/single
- Battery operated

NEW!

Technical specifications

Operating principle	Magnetic induction/eddy current
Measurement range	0µm to 1250µm
Measuring system	Selectable mm/inch
Minimum resolution	0.1µm (coating thickness <100µm)
Measuring accuracy	F: ±(3%H+1µm) N: ±(3%H+1.5µm) H = nominal value
Statistics	Average (MEAN), MAX., MIN., number of measurements (NO.), standard deviation (S.Dev)
Power supply	Battery AAA 1.5V (2 pcs)
Display	LCD with back-light
Dimensions	110mm x 50mm x 23mm
Weight	100gr

Standard delivery
- Main unit
- Calibration foil set
- AAA 1.5V battery (2 pcs)
- Manual
- Certificate
- Carrying case

Optional
- Printer TA-220S with cable

COATING THICKNESS GAUGE TT-211 ™

Simple handheld gauge with ingrated F probe

- Easy to use
- Integrated probe F
- Auto off
- Mm/inch selectable
- Resolution selectable
- Battery operated

NEW!

Technical specifications

Operating principle	Magnetic induction
Measurement range	0 to 1250µm
Measuring system	Selectable mm/inch
Minimum resolution	Selectable 1µm, 5µm, 10µm
Measuring accuracy	F:±(3%H+1µm) H=normal value
Power supply	Battery AAA 1.5V (2 pcs)
Display	LCD
Dimensions (L x W x H)	100mm x 50mm x 23mm
Weight	100gr

Standard delivery

- Main unit
- Zero plate
- AAA 1.5V battery (2 pcs)
- Manual
- Certificate
- Carrying case

COATING THICKNESS GAUGE TT-220™

Handheld gauge with integrated F-probe for steel substrates

- Integrated probe: NO CABLES !
- Any non-magnetic coating on ferrous substrates
- Continuous or single measurement modes
- Statistics
- Real time or batch printing with TA-220 printer
- Rechargeable batteries

Printer TA-220

Technical specifications

Operating principle	Magnetic induction
Application	Any non-magnetic coating on ferrous substrates
Measuring range	0µm- 1250µm
Minimum resolution	0.1µm (coating thickness <10µm)
Measuring accuracy	Zero-point calibration ±(3%H+1µm)µm Two-point calibration ±(1%~3%H+1µm)µm (H= nominal value)
Statistics	Average (MEAN), maximum (MAX), minimum (MIN), number of measurements (NO), standard deviation (S.DEV.)
Features	Real time printing or batch printing on TA-220 Continuous measurement (CONTINUE) and single measurement (SINGLE) Automatic switch off
Sample	
Min. radius workpiece	Convex 1.5mm, concave 9mm
Min. measuring area	7mm diameter
Min. sample thickness	0.5mm
Operating temperature	0°C - 40°C
Power supply	NiMH batteries, 3.6V
Dimensions	150mm x 53mm x 22mm
Weight	150gr

Standard delivery

- Main unit
- Charger
- Calibration foil set
- Carrying case
- Pocket case
- Certificate
- Manual

Optional accessories

- Printer TA-220 with cable
- Certified calibration foils

COATING THICKNESS GAUGE TT-230™

Handheld gauge with integrated N-probe for non-ferrous substrates

- Integrated probe: NO CABLES !
- Continuous or single measurement modes
- Statistics
- Real time or batch printing with TA-220 printer
- Rechargeable batteries

Printer TA-220

Technical specifications

Operating principle	Eddy current
Application	Insulating coatings on non-ferrous substraten
Measuring range	0 - 1250µm
Minimum resolution	0.1µm (coating thickness <10µm)
Accuracy	Zero-point calibration ±(3%H+1µm)µm Two-point calibration ±(1%~3%H+1µm)µm (H= nominal value)
Statistics	Average (MEAN), maximum (MAX), minimum (MIN), number of measurements (NO), standard deviation (S.DEV.)
Features	Real time printing or batch printing on TA-220 Continuous measurement (CONTINUE) and single measurement (SINGLE) Automatic switch off
Sample	
Min. radius workpiece	Convex 1.5mm, concave 9mm
Min. measuring area	7mm diameter
Min. sample thickness	0.5mm
Operating temperature	0°C - 40°C
Power supply	NiMH batteries, 3.6V
Dimensions	150mm x 53mm x 22mm
Weight	150gr

Standard delivery
- Main unit
- Charger
- Calibration foil set
- Carrying case
- Pocket case
- Manual
- Certificate

Optional accessories
- Printer TA-220 with cable
- Certified calibration foils

COATING THICKNESS GAUGE TT-260™

Portable gauge with integral printer and external probes series F or N

- Robust design with removable integral printer
- Large measuring range with several probes available
- Direct testing mode and block statistics mode (APPL/BATCH)
- Direct print out of statistical values
- Data transmission to pc with Dataview software

Technical specifications

Measuring range	0µm - 1250µm with standard probe F1, N1 (10.000µm max)
Probes available	Several probes available for F (ferrous; on steel/iron) and N (non-ferrous metals)
Tolerance	F1: ±(1µm + 3% of reading) N1: ±(1.5µm + 3% of reading)
Resolution	0.1µm
Display	Alphanumeric with 4 large digits
Operation language	English
Standards	Conforms to DIN, ISO, ASTM, BS
Min. measuring area	ø5mm (standard probe N1), ø7mm (standard probe F1)
Min. curvature radius	Convex: 3mm, concave: 50mm
Min. substrate thickness	Type F: 0.5mm, type N: 0.3mm
Calibration	Factory setting, zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum of maximum 3000 readings
Data memory	5 blocks of 99 readings can be stored for later reference
Limits	Adjustable with acoustic alarm
Interface	RS-232
Operating temperature	0°C - 40°C
Power supply	NiMH rechargeable batteries, 1.25V (4 pcs)
Dimensions	270mm x 86mm x 47mm
Weight	530gr

Standard delivery

- Main unit
- Probe (F or N series selectable)
- Charger
- Zero plate
- Calibration foils
- Carrying case
- Manual
- Certificate

Optional accessories

- Several probes for different applications
- PC software Dataview for online and data transfer
- Certified calibration foils in various thickness

Instruments

HARDNESS TESTERS - DUROMETERS - SURFACE FINISH TESTERS
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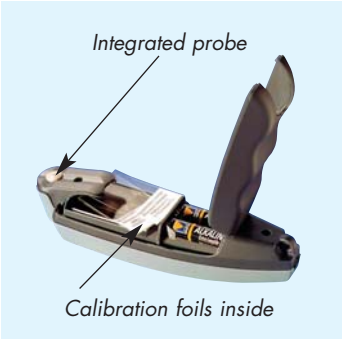
COATING THICKNESS GAUGE CV-CG200 SERIES™

Handheld gauge CV-CG200 series with integrated probe F or N or FN

- Integrated probe F or N or FN
- Ergonomic design
- Automatic substrate recognition (ferrous/non-ferrous)
- User friendly operation menu
- Online statistics on display
- Calibration standards stored in housing
- Manual available in English, French or German language
- Data transmission by infrared interface and RS-232C



Technical specifications

Models with integrated probe	CV-CG200F (ferrous; on steel/iron) CV-CG200N (non-ferrous metals), CV-CG200FN (ferrous and non-ferrous combined)
Models with external probe	Same as above but now model CV-CG210
Measuring range	0 - 2000µm (µm/mills selectable)
Tolerance	±(2µm + 3% of reading)
Resolution	0.1µm
Display	Alphanumeric with back-light
Operating language	English
Standards	DIN, ISO, ASTM, BS
Min. measuring area	20mm diameter
Min. curvature radius	Convex: 5mm, Concave: 60mm in centre, 35mm at the edges
Min. substrate thickness	Type F: 0.5mm, type N: 50µm
Calibration	Factory setting, zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum; block statistics (5….30) data per block
Data memory	90 readings or 45 block values
Limits	Adjustable with acoustic alarm
Interface	RS-232C (to printer CV-CG300 or pc)
Ambient temperature	0°C - 50°C
Power supply	2AA batteries, 1.5V
Dimensions	Gauge 160mm x 35mm x 40mm
Weight	Approx. 200gr

Standard delivery

- Gauge + probe (F or N or FN)
- Soft pouch with strip and wriststrap
- Zero plate (one or two according to model)
- Calibration foils (2 pcs)
- Batteries (2pcs)
- Manual
- CV Instruments certificate

Optional accessories

- PC software for online and data transfer
- Interface cable for standard PC
- Portable data printer CV-CG300 with interface cable
- Calibration foils in various thickness

COATING THICKNESS GAUGE CV-CG210 SERIES™

Handheld gauge CV-CG210 series with external fixed probe F or N or FN

- Fixed external probe F or N or FN
- Ergonomic design
- Automatic substrate recognition (ferrous/non-ferrous)
- User friendly operation menu
- Online statistics on display
- Calibration standards stored in housing
- Manual available in English, French or German language
- Data transmission by infrared interface

Technical specifications

Models available	CV-CG210F (ferrous; on steel/iron), CV-CG210N (non-ferrous metals), CV-CG210FN (ferrous and non-ferrous combined)
Measuring range	0 - 2000µm (µm/mills selectable)
Tolerance	±(2µm + 3% of reading)
Resolution	0.1µm
Display	Alphanumeric with back-light
Operating language	English
Standards	DIN, ISO, ASTM, BS
Min. measuring area	20mm diameter
Min. curvature radius	Convex: 5mm, Concave: 60mm in centre, 35mm at the edges
Min. substrate thickness	Type F: 0.5mm, type N: 50µm
Calibration	Factory setting, zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum; block statistics (5….30) data per block
Data memory	90 readings or 45 block values
Limits	Adjustable with acoustic alarm
Interface	Infrared to printer CV-CG300 or pc
Ambient temperature	0°C - 50°C
Power supply	2AA batteries, 1.5V
Dimensions	Gauge 160mm x 35mm x 40mm
Weight	Approx. 200gr

Standard delivery

- Gauge + probe (F or N or FN)
- Soft pouch with strip and wriststrap
- Zero plate (one or two according to model)
- Calibration foils (2 pcs)
- Batteries (2pcs)
- Manual
- CV Instruments certificate

Optional accessories

- PC software for online and data transfer with infrared interface cable
- Portable data printer CV-CG300 with infrared interface cable
- Calibration foils in various thickness

COATING THICKNESS GAUGE CV-CG310/320™

Portable gauge with external probes series

- Robust design, top quality instrument
- CV-CG310 memory for 1 reading only
- CV-CG320 memory for 10.000 readings
- Large measuring range with 20 probes available
- Direct testing mode
- Large memory with statistics computation
- Coating-through-coating feature
- Data output to printer CV-CG300 or pc

20 probes available

See technical specification overview !

CV-CG300 printer

Technical specifications

Models available	20 probes available for F (ferrous; on steel/iron), N (non-ferrous metals) and FN (combined), see list
Measuring range	0 - 1600µm with standard probe F1.6 or N1.6
Tolerance	±(1µm + 1% of reading) with standard probes
Resolution	0.1µm
Display	Alphanumeric with 4 large digits
Operation language	English
Standards	DIN, ISO, ASTM, BS
Min. measuring area	5mm x 5mm (with standard probe)
Min. curvature radius	Convex: 3mm, concave: 50mm
Min. substrate thickness	Type F: 0.5mm, type N: 50µm
Calibration	Factory setting, zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum of maximum 10.000 readings (only CV-CG320)
Data memory	1 individual reading (CV-CG310) 10.000 individual readings, 1 batch only (CV-CG320) See next page for models with extended memory capacity
Interface	RS-232
Ambient temperature	0°C - 50°C
Power supply	1 x 9V alkaline battery, AC adapter
Dimensions	Gauge 150mm x 82mm x 35mm
Weight	Approx. 270gr

Standard delivery
- Gauge excluding probe
- Zero plate
- Calibration foils (2 pcs)
- Manual
- CV Instruments certificate

Optional probes
- Probes (F or N or FN series selectable), see overview

Optional accessories
- Carrying case with accessories
- 20 probes for different applications, see overview
- Printer CV-CG300
- PC software for online and data transfer
- Calibration foils in various thickness

See next page for models with extended memory capacity

COATING THICKNESS GAUGE CV-CG330/340™

Portable gauge with external probes series

- Robust design, top quality instrument
- CV-CG330 memory 10.000 readings, 100 batches
- CV-CG340 memory 10.000 readings, 500 batches
- Large measuring range with 20 probes available
- Direct testing mode and block statistics mode
- Large memory with block statistics computation
- Coating-through-coating feature
- Data output to printer CV-CG300 or pc

20 probes available

See technical specification overview !

CV-CG300 printer

Technical specifications

Models available	20 probes available for F (ferrous; on steel/iron), N (non-ferrous metals) and FN (combined), see list
Measuring range	0 - 1600µm with standard probe F1.6 or N1.6
Tolerance	±(1µm + 1% of reading) with standard probes
Resolution	0.1µm
Display	Alphanumeric with 4 large digits
Operation language	English
Standards	DIN, ISO, ASTM, BS
Min. measuring area	5mm x 5mm (with standard probe)
Min. curvature radius	Convex: 3mm, concave: 50mm
Min. substrate thickness	Type F: 0.5mm, type N: 50µm
Calibration	Factory setting, zero and foil calibration
Statistics	Number of measurements, mean, standard deviation, maximum and minimum of maximum 10.000 readings
Data memory	10.000 individual readings and max. 100 batches with individual values (CV-CG330) 10.000 individual readings and max. 500 batches with individual values (CV-CG340)
Limits	Adjustable with acoustic alarm
Interface	RS-232
Ambient temperature	0°C - 50°C
Power supply	1 x 9V alkaline battery, AC adapter
Dimensions	Gauge 150mm x 82mm x 35mm
Weight	Approx. 270gr

Standard delivery
- Gauge excluding probe
- Zero plate
- Calibration foils (2 pcs)
- Manual
- CV Instruments certificate

Optional probes
- Probes (F or N or FN series selectable) see overview

Optional accessories
- Carrying case with accessories
- 20 probes for different applications, see overview
- PC software for online and data transfer
- Calibration foils in various thickness

COATING THICKNESS GAUGE CV-CG250/250B ™

Basic model portable gauge with external probe / statistics & output optional

- Fixed external probe F or N or FN
- Ergonomic design
- Automatic substrate recognition (ferrous/non-ferrous)
- User friendly operation menu
- Display with black-light
- Calibration standards stored in housing
- Language selectable English, French or German

Model CV-CG250 only:
- Online statistics on display
- Data transmission by RS-232
- Data output to printer CV-CG300 (with cable) or pc

CV-CG250B
Basic version without statistics, no output

CV-CG300 printer

Technical specifications

Range	Type F (ferrous)	0...3000µm / 120 mils
	Type N (non-ferrous)	0...2000µm / 80 mils
	Type FN (ferrous/non-ferrous)	0...2000µm / 80 mils
Accuracy	± 2µm (0.08 mils) or 4% of the value	
Min. radius	5mm (0.2 inch) convex and 25mm (1 inch) concave	
Min. measuring contact	ø 20mm (0.8inch)	
Min. substrate thickness	0.5mm (20 mils)	
Display	Alphanumerical with 4 digits (11mm/0.44inch)	
Unit	µm - mils to choice	
Calibration	Standard, 1-point, 2-point	
Statistics	X average, standard dev., n (max. 9999), min, max	
Interface	RS-232 C	
Power supply	2 alkaline batteries (for over 10.000 readings)	
Dimensions	Gauge:	64mm x 115mm x 25mm
	Probe:	15mm dia. x 62mm (0.6inch x 2.5inch)

Standard delivery
- Gauge + probe (F or N or FN)
- Zero plate (one or two according to model)
- Calibration foils (2 pcs.)
- Batteries (2 pcs)
- RS-232-C (model CV-CG250 only)
- Manual
- CV Instruments certificate

Optional accessories
- Portable data printer CV-CG300 with interface cable
- Calibration foils in various thickness
- Soft pouch with strip and wriststrap

PRINTER CV-CG300 ™

CV Printer for CV-CG250/310/320/330/340/600 coating thickness gauge series

- Reliable and fast mini-printer for CV-CG250/310/320/330/340/600
- Prints numerical values
- EPSON print head
- RS-232 input
- Power adapter included

Technical specifications

Display	4 digit lcd
Functions	Paper feed, on/off
Data transmission	RS-232C
Print head	5 x 7 matrix Epson
Paper	50mm
Power	Storage battery 5V
Charger	5V / 2.4A
Dimensions	85mm x 152mm x 48mm
Weight	0.5kg

Standard delivery
- Printer CV-CG300
- Charger 5V
- Printer rolls (2 pcs)
- Storage battery 5V

Optional accessories
- Data cable
- Printer paper (set of 5)
- Printer ribbon

WALL THICKNESS GAUGE CV-CG500 ™

Handheld gauge for wall and coating thickness testing of metals, glass and plastics

NEW!

- New: Considerably improved measuring properties through SIDSP !
- Non-destructive wall thickness measurement up to 4mm and/or 10mm
- Up to 20 measurements per second
- For all non-magnetic materials such as plastics, wood, glass, ceramics, glass fiber, carbon fiber laminates, non-ferrous metals, etc.
- For hollow parts and containers of all kinds such as bottles, cans, injection moulding products, etc.
- Also for plastic sheets, automotive body parts, glass panes, SMC plastics other large-sized components, etc.
- Complete measuring technique is integrated in the sensor

With this totally new SIDSP procedure, all necessary measuring signals are created and completely processed in the sensor itself.
Only the completely processed digital readings are transferred to the base unit for display, statistical evaluation and data storage.
Unlike the commonly used analogue procedures, the new SIDSP procedure excludes any error influences on the measuring data during transfer over the probe cable. The result is a measuring accuracy and constancy of readings, unmatched so far.
Further innovations to increase measuring accuracy: the new process technology manufacture the reference balls used to results an increased reproducibility of over 0.5% and the calibration method enabling up to 5 calibration points.
Calibration can be done over the complete range or over defined ranges.

Innovative menu control and data filing system
The new CV-CG500 is very easy to opearate. The menu-controlled user surface offers a user-friendly data filing system similar to common PC applications and a contextsensitive on-line help.

Data processing
The gauge features display of minimum and maximum readings, an offset mode (related to the set value), automatic storage of readings into the statistics as well as visual display of the continuously taken readings (real-time diagram).

WALL THICKNESS GAUGE CV-CG500 ™

Handheld gauge for wall and coating thickness testing of metals, glass and plastics

Technical specifications

Measuring principle	Magneto-static
Measuring rate	Up to 20 readings per second
Number of readings memorized in the statistics	1, 2, 5, 10, 20 readings/sec to choice
Measuring range FH4 probe	0...1.5mm with 1.5mm reference ball 0...2.5mm with 2.5mm reference ball 0...4.0mm with 4.0mm reference ball
Measuring range FH10 probe	0...2.5mm with 2.5mm reference ball 0...4.0mm with 4.0mm reference ball 0...10.0mm with 6.0mm reference ball
Low range sensitivity	0.1µm
Measuring tolerance of FH4 probe	0...1.5mm : ± (5µm + 1 % of reading) 0...2.5mm : ± (5µm + 1 % of reading) 0...4.0mm : ± (10µm + 1 % of reading)
Measuring tolerance of FH 10 probe	0...2.5mm : ± (5µm + 1 % of reading) 0...4.0mm : ± (10µm + 1 % of reading) 0...10.0mm : ± (20µm + 1 % of reading)
Calibration modes	Zero, 2-point, 3-point, 4-point and 5-point calibration
Display	LCD 160x160 pixel with backlight
Measuring units	Metric (µm, mm), imperial (mils, inch)
Data memory	100,000 readings
Statistical evaluation	Numeric, trend and histogram
Languages	English, German, French
Interface	Cable, (RS232 TTL) and/or combination port for foot switch, external contact, Infrared (IrDA 1.1)
Operating temperature	-10°C ... +60°C
Storing temperature	-20°C ... +80°C
Dimensions and weight of gauge	153mm x 89mm x 32mm / 310 gr (batteries incl.)
Dimensions and weight ofFH4 probe	17mm ø x 96mm / 90 gr
Dimensions and weight of FH10 probe	29,5mm ø x 125mm / 300 gr
Dimensions of plastics carrying case	365mm x 450mm x 140mm
Power supply	4 x AA (LR06), power unit (90-240V~ / 48-62Hz)

Standard delivery
- CV-CG500
- Batteries AA LR06(4 pcs)
- Instruction manual available in German/English/French
- Short manual
- Carrying case
- Magnetic screwdriver

Optional accessories for CV-CG500
- Portable printer CV-CG550
- Probe FH4 including operating stand
- Probe FH10 including operating stand
- Rubber protection case

Standard accessories for probe FH4 *1
- Calibration cap: 0.3mm, 1mm, 3mm
- 3 zero calibration standards: ø1.5mm, ø2.5mm, ø4mm
- Set of 100 balls ø1.5mm
- Set of 100 balls ø2.5mm
- Set of 50 balls ø4mm

Standard accessories for probe FH10 *2
- Calibration cap: 1mm, 3mm, 8mm
- 4 zero calibration standards: ø2.5mm, ø4mm, ø6mm, ø9mm
- Set of 100 balls ø2.5mm
- Set of 50 balls ø4mm
- Set of 25 balls ø6mm
- Set of 10 balls ø9mm

*1. Set of standards for 5 points calibration/FH-4 probe and ball diameter 4 mm.
1 Precision standard in approx. 0.43mm, 0.75mm, 1.3mm, 2.2mm and 3.6mm.

*2. Set of standards for 5 points calibration/FH-10 probe and ball diameter 6 mm.
1 Precision standard in approx. 1.0mm, 1.7mm, 3.0mm, 5.2mm and 9.0mm.

PROBES FOR CV-CG310/320/330/340 SERIES™

N-probes for non-ferrous substrates

Probe model	Probe type	Measuring range/ Min. area for measurement	Application
	N 02 Non-ferrous	0-200µm ø 2mm	Extremely thin insulating coatings, e.g. paint or anodising coatings on non-ferrous metal high resolution (0.1µm) in the lower part of the measuring range
	N 08Cr Non-ferrous	0-80µm ø 5mm	Extremely thin chrome coatings on copper, aluminium or brass
	N 1.6 Non-ferrous	0-1600µm ø 5mm	thin insulating coatings, e.g. paint or anodising coatings on non-ferrous metal high resolution (0.1µm) in the lower part of the measuring range
	N 2 Non-ferrous	0-2000µm ø 2mm	Insulating coatings, e.g. paint, on non-ferrous **NOT AVAILABLE!**
	N 1.6/90 Non-ferrous	0-1600µm ø 5mm	Thin insulating coatings, e.g. paint or anodising coatings on non-ferrous metal especially appropriate for measurements in tubes and pipes or objects which are difficult to access high resolution (0.1µm) in the lower part of the measuring range
	N 2/90 Non-ferrous	0-2000µm ø 5mm	Insulating coatings, e.g. paint, on non-ferrous metal especially appropriate for measurements in tubes and pipes or objects which are difficult to access
	N 10 Non-ferrous	0-10mm ø 50mm	Insulating coatings, e.g. rubber, plastics, glass, on non-ferrous metal
	N 20 Non-ferrous	0-20mm ø 70mm	Insulating coatings, e.g. rubber, plastics, glass, on non-ferrous metal
	N 100 Non-ferrous	0-100mm ø 200mm	Insulating coatings, e.g. rubber, plastics, glass, compounds etc., on non-ferrous metal
	CN 02 Non-ferrous	10-200mm ø 7mm	Non-ferrous metal coatings, e.g. copper, on insulating substrates

PROBES FOR CV-CG310/320/330/340 SERIES™

F-probes for ferrous substrates and FN-probes for ferrous and non-ferrous substrates

Probe model	Probe type	Measuring range/ Min. area for measurement	Application
	FN 1.6 Combined Probe	0...1600µm ø 5mm	Non-magnetic coatings on steel and insulating coatings on non-ferrous metal high resolution (0.1µm) in the lower part of the measuring range
	FN 1.6 P Combined Probe	0...1600µm ø 30mm	Powder coatings before baking on steel and non-ferrous metal
	F 05 Ferrous	0...500µm ø 3mm	Extremely thin metals, oxide or paint coatings on small steel objects high resolution (0.1µm) in the lower part of the measuring range
	F 1.6 Ferrous	0...1600µm ø 5mm	Non-magnetic coatings on steel high resolution (0.1µm) in the lower part of the measuring range
	F 3 Ferrous	0...3000µm ø 5mm	Non-magnetic coatings on steel, thick paint and enamel coatings
	F 1.6/90 Ferrous	0...1600µm ø 5mm	Non-magnetic coatings on steel especially appropriate for measurements in tubes and pipes or objects which are difficult to access high resolution (0.1µm) in the lower part of the measuring range
	F 2/90 Ferrous	0...2000µm ø 5mm	Non-magnetic coatings on steel especially appropriate for measurements in tubes and pipes or objects which are difficult to access
	F 10 Ferrous	0...10mm ø 20mm	Anticorrosive coatings in tanks and pipe construction, e.g. glass, plastics, rubber and concrete on steel
	F 20 Ferrous	0...20mm ø 40mm	Anticorrosive coatings in tanks and pipe construction, e.g. glass, plastics, rubber and concrete on steel
	F 50 Ferrous	0...50mm ø 300mm	Anticorrosive coatings in tanks and pipe construction, e.g. glass, plastics, rubber andconcrete on steel antinoise coatings